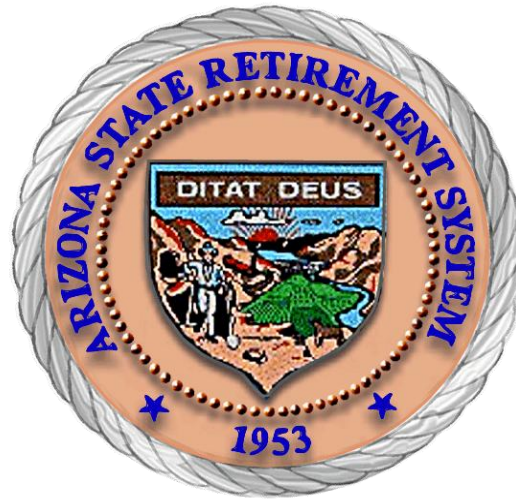


# Arizona State Retirement System Board



## Global Tactical Asset Allocation (GTAA)

Gary R. Dokes, Chief Investment Officer  
Sarah Wadsworth, Senior Portfolio Analyst  
Terry Dennison, Mercer Investment Consulting

November 21, 2008

# Agenda

- Asset Allocation Approaches
- Evolution of ASRS Tactical Asset Allocation Program
- ASRS Perspective of GTAA
- ASRS Current Global Asset Allocation (GTAA) Program (Aggregate)
  - Asset Class Snapshot
  - Alpha
  - Information Ratio
  - Mercer Manager Ratings and Review
- GTAA Manager Reviews (Individual)
  - Portfolio Profile
  - Alpha
  - Information Ratio
  - Performance Attribution
  - Current Portfolio Positioning
  - Allocation of Active Risk

# Asset Allocation Approaches

- Strategic Asset Allocation (SAA)
  - A long-term dedicated investment policy using asset classes and their respective total fund weightings consistent with a prescribed risk/return profile
- Tactical Asset Allocation (TAA)
  - A tactical approach to asset allocation that allows for opportunistic moves between various asset classes in an attempt to provide additional return by taking advantage of changing market conditions

# Evolution of ASRS

## Tactical Asset Allocation Program

- ASRS Tactical Asset Allocation program was initiated in 1984.
- At the end of 2003, moved from US TAA to Global TAA strategy.
  - The Board approved the hiring of Goldman Sachs and Bridgewater.
- In early 2007, Goldman Sachs' \$1.4 billion mandate was terminated.
- In 2007, Bridgewater's guidelines were modified to include exposure to commodities in the range of 10%.
- In 2008, DB Advisors and Mellon Capital were hired.
  - DB funded with approximately \$492 million from BGI Index Funds.
  - To date Mellon Capital's funding has not occurred.

# ASRS Perspective on GTAA

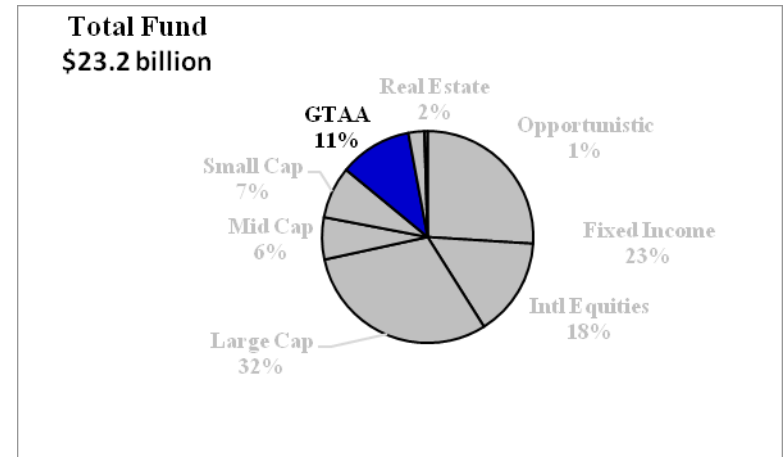
- GTAA provides the ASRS with a systematic framework for making macro-level tactical asset class investment decisions.
- GTAA is viewed as an “alpha-generator” whose returns should primarily result from portfolio positioning in the economic beta asset classes in which the ASRS invests.
- GTAA requires a demonstrated skill set in predicting the dispersion of longer-term asset class returns.

# GTAA Program Snapshot

## As of 9/30/2008

- Investment Managers:

- Bridgewater Associates
  - Inception: December 31, 2003
  - Portfolio: \$1.7 billion
- DB Advisors
  - Inception: May 31, 2008
  - Portfolio \$420 million
- Barclays Global Investors
  - Inception: February 28, 2007
  - Portfolio: \$459 million



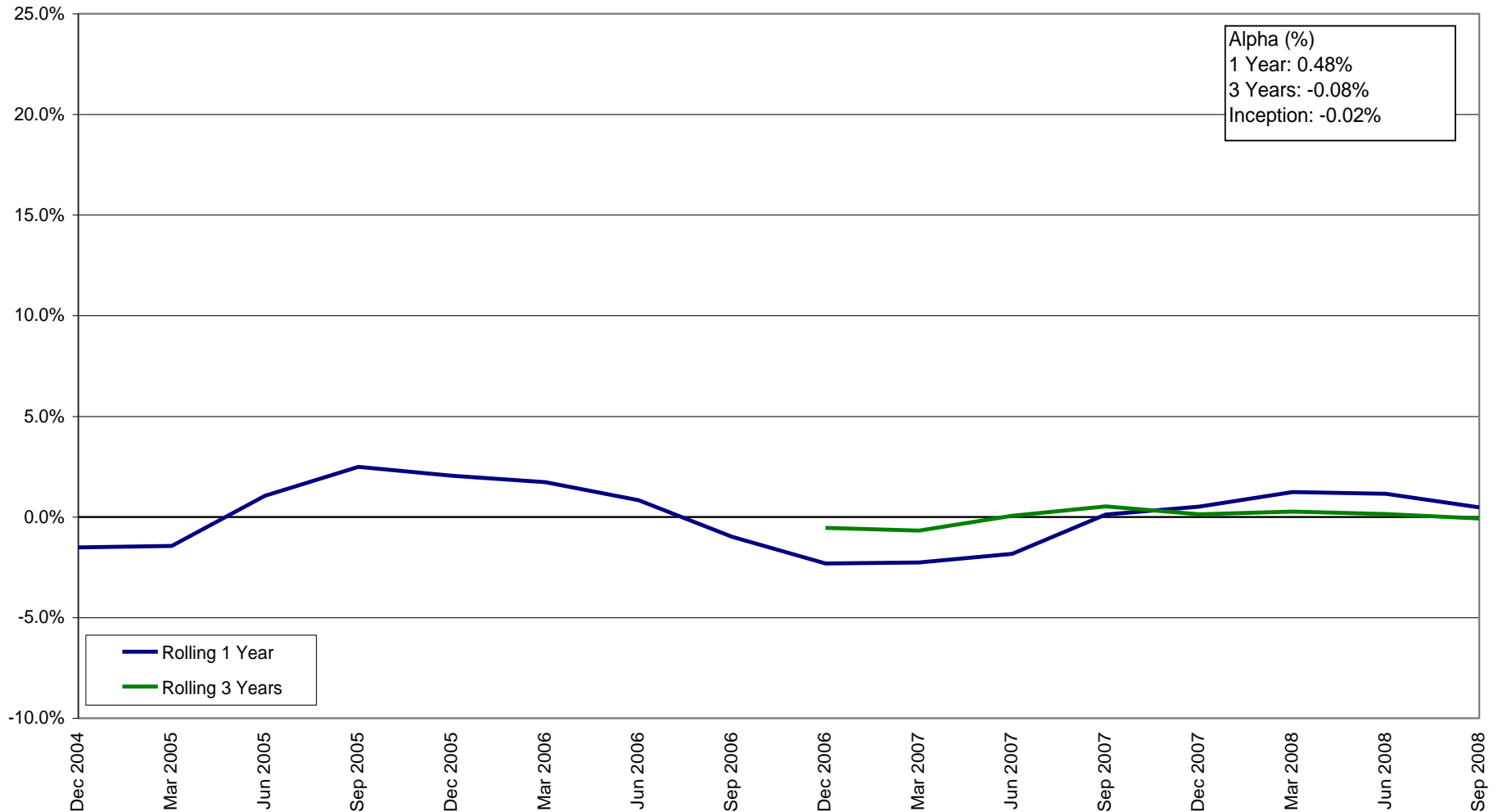
- Benchmark:

- S&P 500 56%, MSCI EAFE 16%, Lehman Aggregate 28%

- GTAA was \$2.6 billion, or 11% of the Total Fund (target  $10 \pm 2\%$ )

# Alpha GTAA Composite

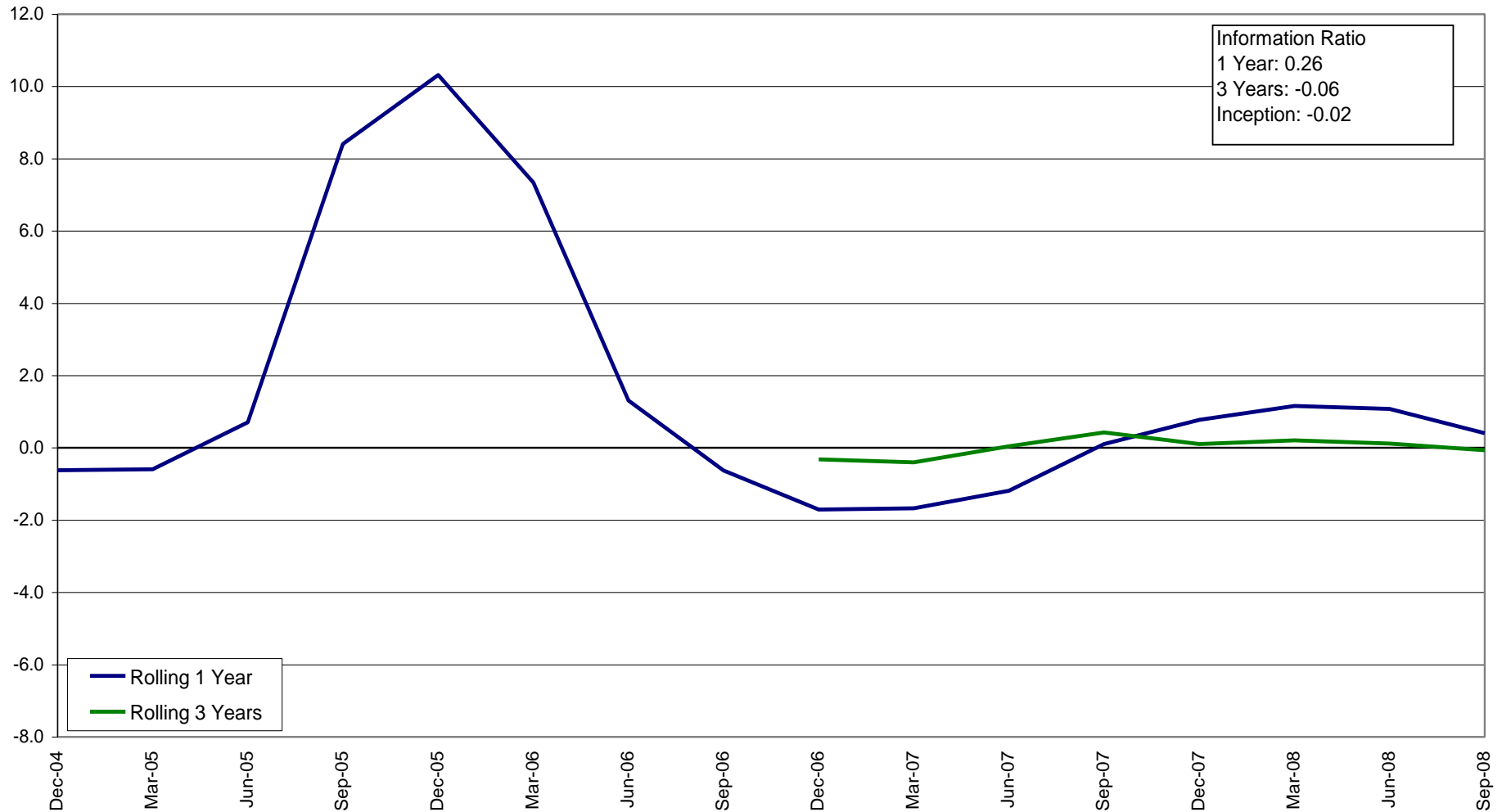
Inception Date December 31, 2003 – Period Ending September 30, 2008



Calculated quarterly and net of fees

# Information Ratio GTAA Composite

Inception Date December 31, 2003 – Period Ending September 30, 2008



Calculated quarterly and net of fees



# Bridgewater Associates

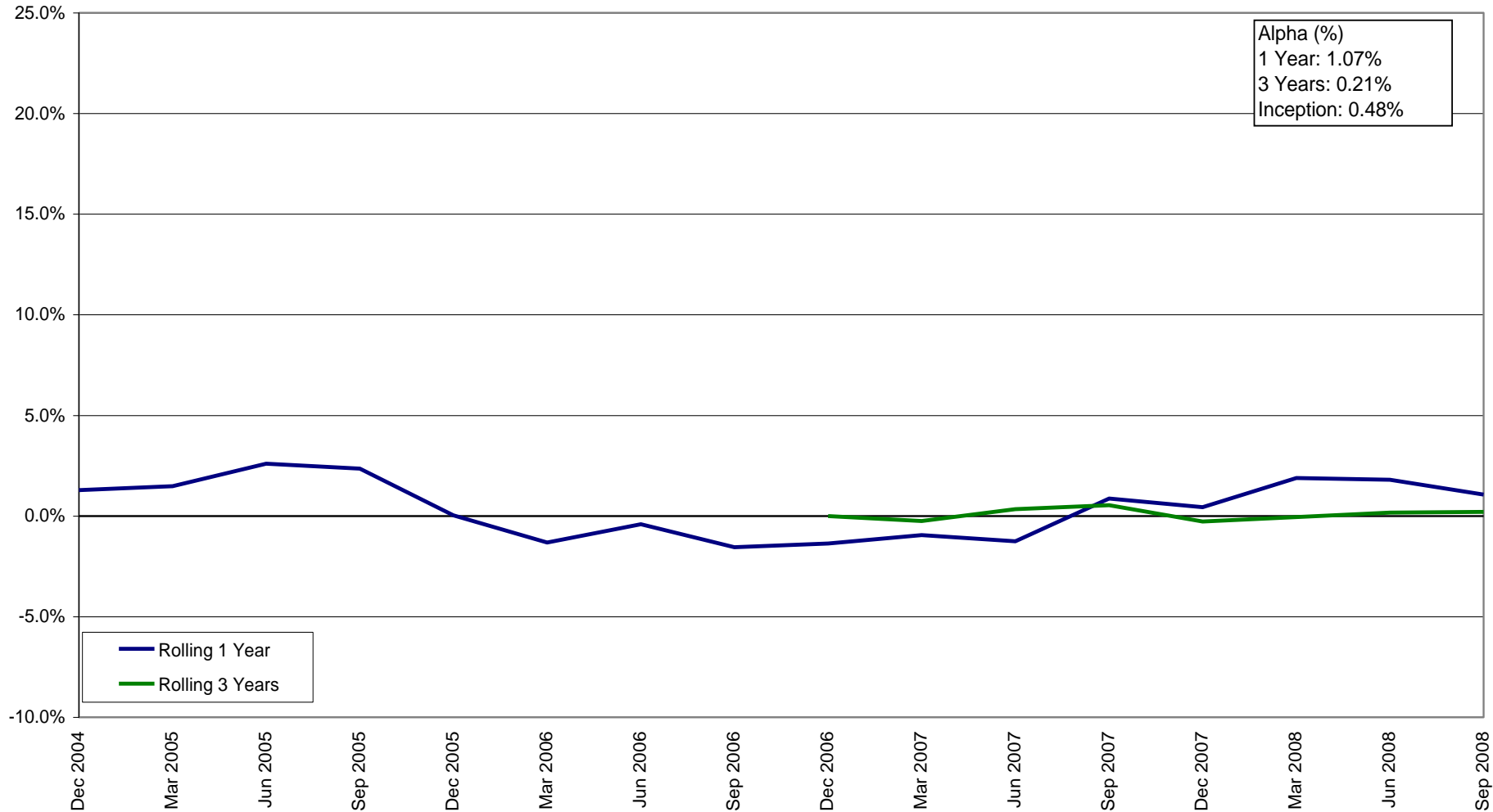
## Portfolio Profile

|   |  |
|---|--|
| Portfolio size  | \$1,694 million  |
| Expected excess return  | 3.00%  |
| Expected tracking error (active risk)   | 3.75%  |
| Expected information ratio  | 0.80   |
| Fees  | 43 bps   |
| Portfolio structure   | Derivatives – 62.0%<br>Physical Securities – 35.1%<br>BW Corporate Bond Fund – 2.2%<br>BW Equity Fund - 0.7% |
| Investment process  | Fundamental  |
| <p>Bridgewater believes that a deep understanding of the fundamental determinates of each country's interest rates, exchange rates, and equity markets is an essential prerequisite for adding value in global tactical asset allocation. Bridgewater also believes that a systematic process for quantifying this fundamental relationship and converting it into investment decisions is essential.</p> |  |

# Alpha

## Bridgewater Associates

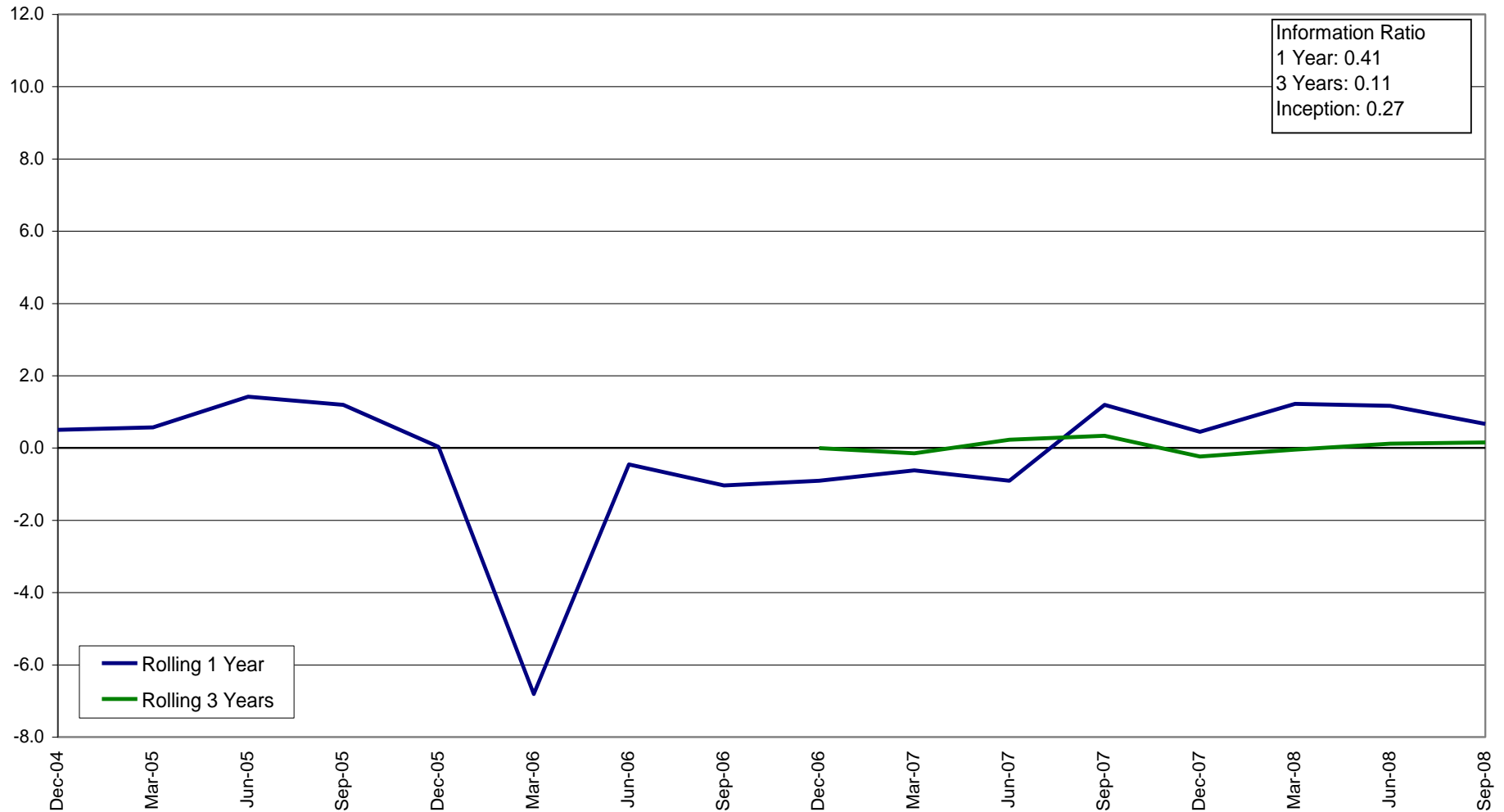
Inception Date December 31, 2003 – Period Ending September 30, 2008



# Information Ratio

## Bridgewater Associates

Inception Date December 31, 2003 – Period Ending September 30, 2008



# Bridgewater Associates

## Performance Attribution

1 Year Ending September 30, 2008

- **Biggest Winners**

- Long Commodities
- Short UK interest rates on a relative basis
- Short European equities on a relative basis
- Short the Euro and British Pound relative to the US Dollar

- **Biggest Losers**

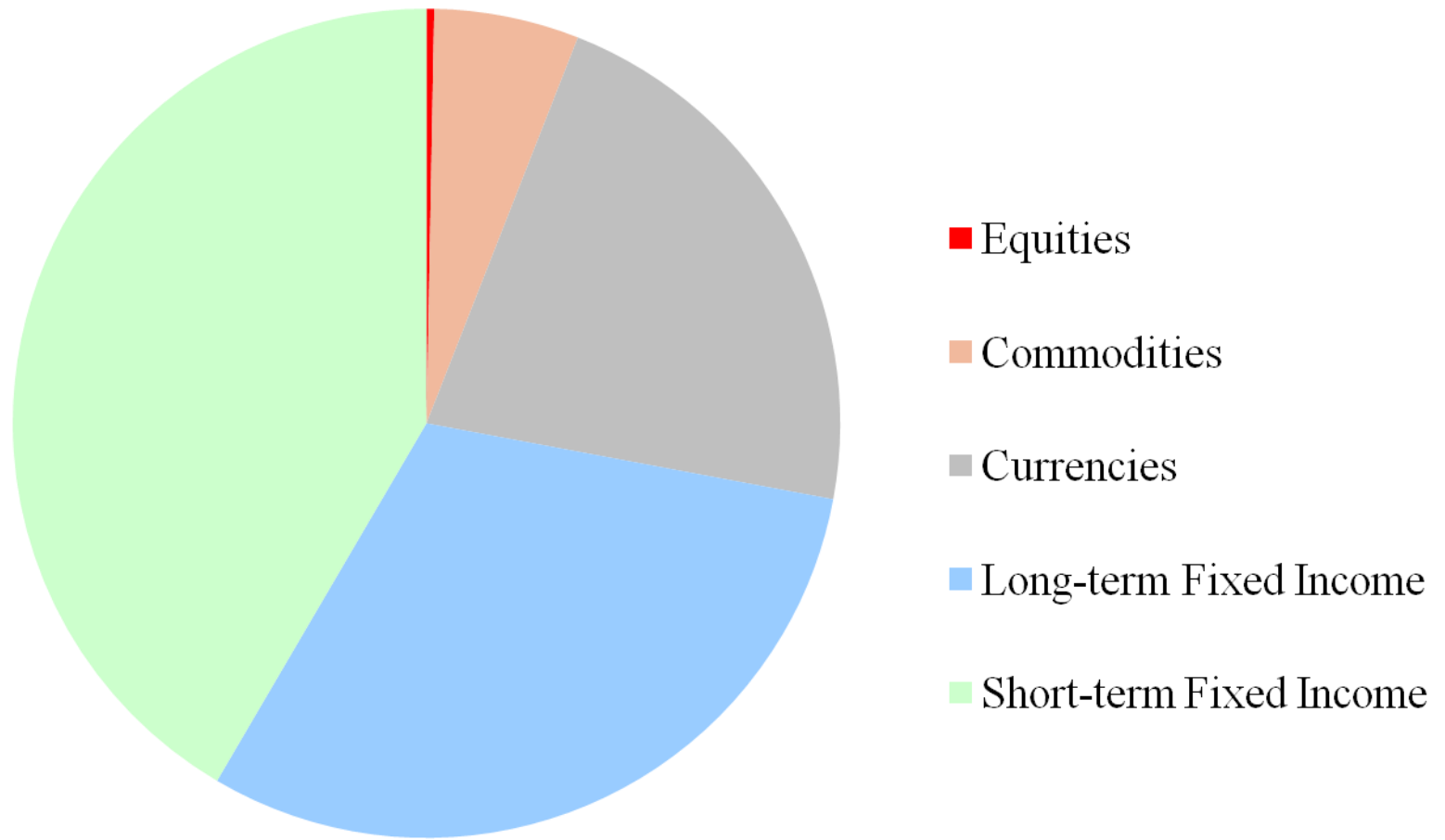
- Bearish relative value views on Australian short rates and US Bonds
- Long position in US Equities

# Bridgewater Associates

## Current Portfolio Positions

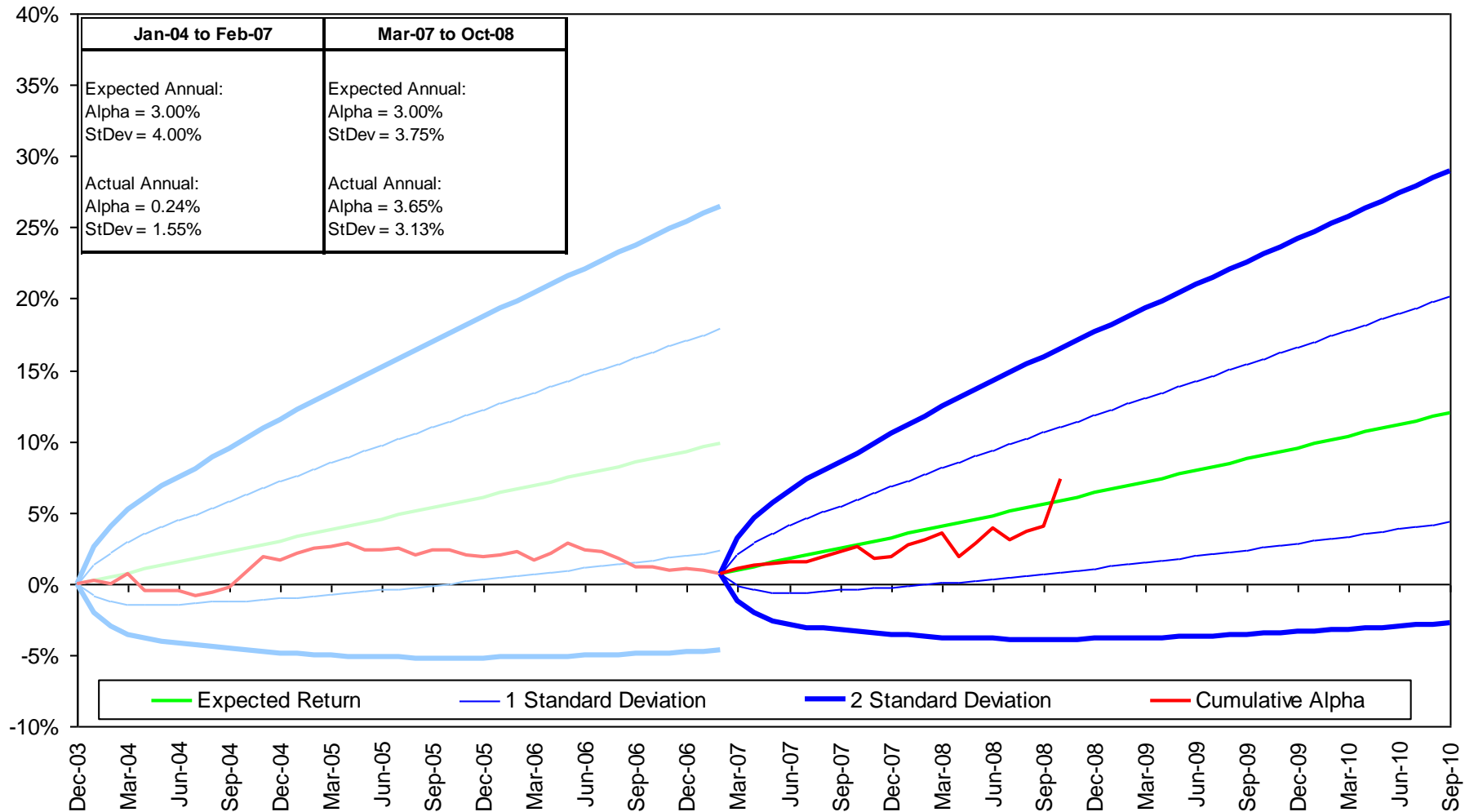
| Strategy                             | Deviation from Benchmark |   |
|--------------------------------------|--------------------------|---|
| <b>Equity Country Selection:</b>     |                          |   |
| Total Equities                       | 1.7%                     | Nearly flat overall; like the US relative to Europe.  |
| <b>Commodities:</b>                  |                          |   |
| Total Commodities                    | -2.2%                    | Find industrial metals unattractive.  |
| <b>Foreign Currency:</b>             |                          |   |
| Euro                                 | -11.4%                   | Bearish EUR as stripped of interest rate support;<br>Bullish JPY because of liquidity squeeze and solid fundamentals;<br>Find the GBP cheap relative to the Euro;<br>NZD hurt as carry trade continues to unwind. |
| Japan                                | 8.8%                     |   |
| United Kingdom                       | 3.5%                     |   |
| New Zealand                          | -3.2%                    |   |
| Other (4)                            | 1.3%                     |   |
| Total Foreign Currency               | -1.0%                    |   |
| <b>Fixed Income Strategy</b>         |                          |   |
|                                      | Contribution to Duration |   |
| <b>Long-term Country Selection:</b>  |                          |   |
| United Kingdom                       | 1.4                      | Bullish on bonds in US, UK and Japan.   |
| United States                        | 0.9                      |   |
| Australia                            | -0.8                     |   |
| Canada                               | -0.4                     |   |
| Other (2)                            | 0.1                      |   |
| Total Nominal Long Rates             | 1.2                      |   |
| <b>Short-term Country Selection:</b> |                          |   |
| United States                        | 0.7                      | Expect short rates to go lower (and stay there longer) than is discounted in the US, Euro-land and the UK.  |
| United Kingdom                       | 0.6                      |   |
| Euroland                             | 0.6                      |   |
| Other (2)                            | -0.8                     |   |
| Total Nominal Short Rates            | 1.1                      |   |

# Bridgewater's Current Allocation of Active Risk



# Bridgewater Performance vs. Expectations

Arizona State Retirement System Gross Cumulative Alpha vs. Expectations



Note: Effective March 2007, concurrent with an expansion of the account's leeway, the target tracking error of the mandate was decreased from 4.00% to 3.75%. Performance shown is based upon the returns of the account or investment referenced, as managed by Bridgewater. Performance is estimated for the periods referenced through October 31, 2008. Where shown, gross of fees returns will be reduced by the investment advisory fees and any other expenses that may be incurred in the management of the account or investment. PAST RESULTS ARE NOT NECESSARILY INDICATIVE OF FUTURE RESULTS.

# DB Advisors

## Portfolio Profile

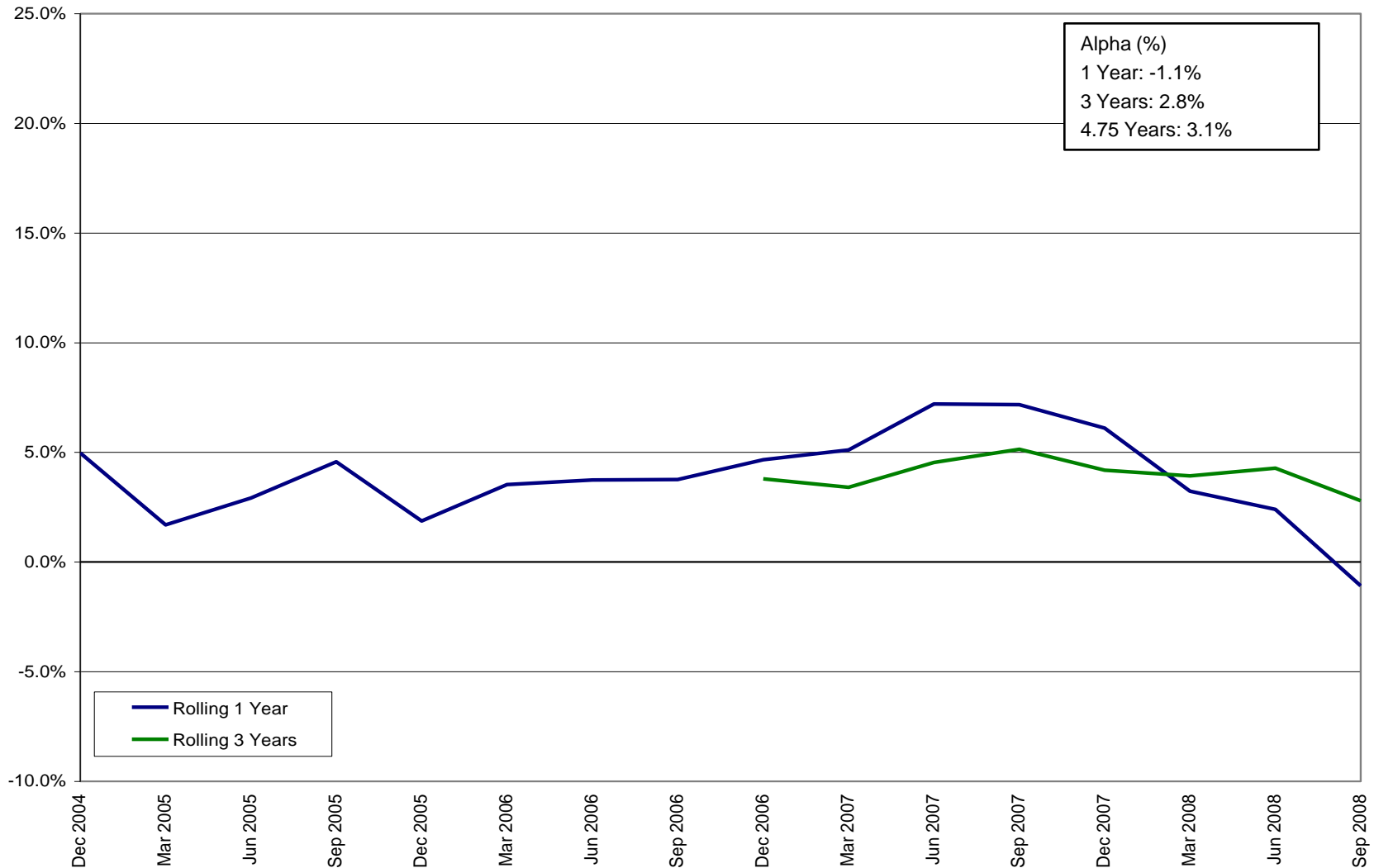
|   |  |
|---|--|
| Portfolio size  | \$420 million                                      |
| Expected excess return  | 3.00%  |
| Expected tracking error (active risk)   | 3.75%  |
| Expected information ratio  | 0.80   |
| Fees  | 60 bps   |
| Portfolio structure   | Physical Securities – 87.2%<br>Derivatives – 12.8% |
| Investment process  | Quantitative / Qualitative Blend                   |
| <p>Deutsche believes that no single approach to GTAA management works in all market conditions. A diversified approach that captures the strengths of different styles (quantitative and qualitative) and time horizons (long-, medium- and short-term) within multiple pools of alpha (e.g. equity, bond, currency, commodity, asset class rotation, etc.) is preferable. Accordingly, Deutsche's iGAP strategy captures diversification along these dimensions.</p> |  |



# Alpha

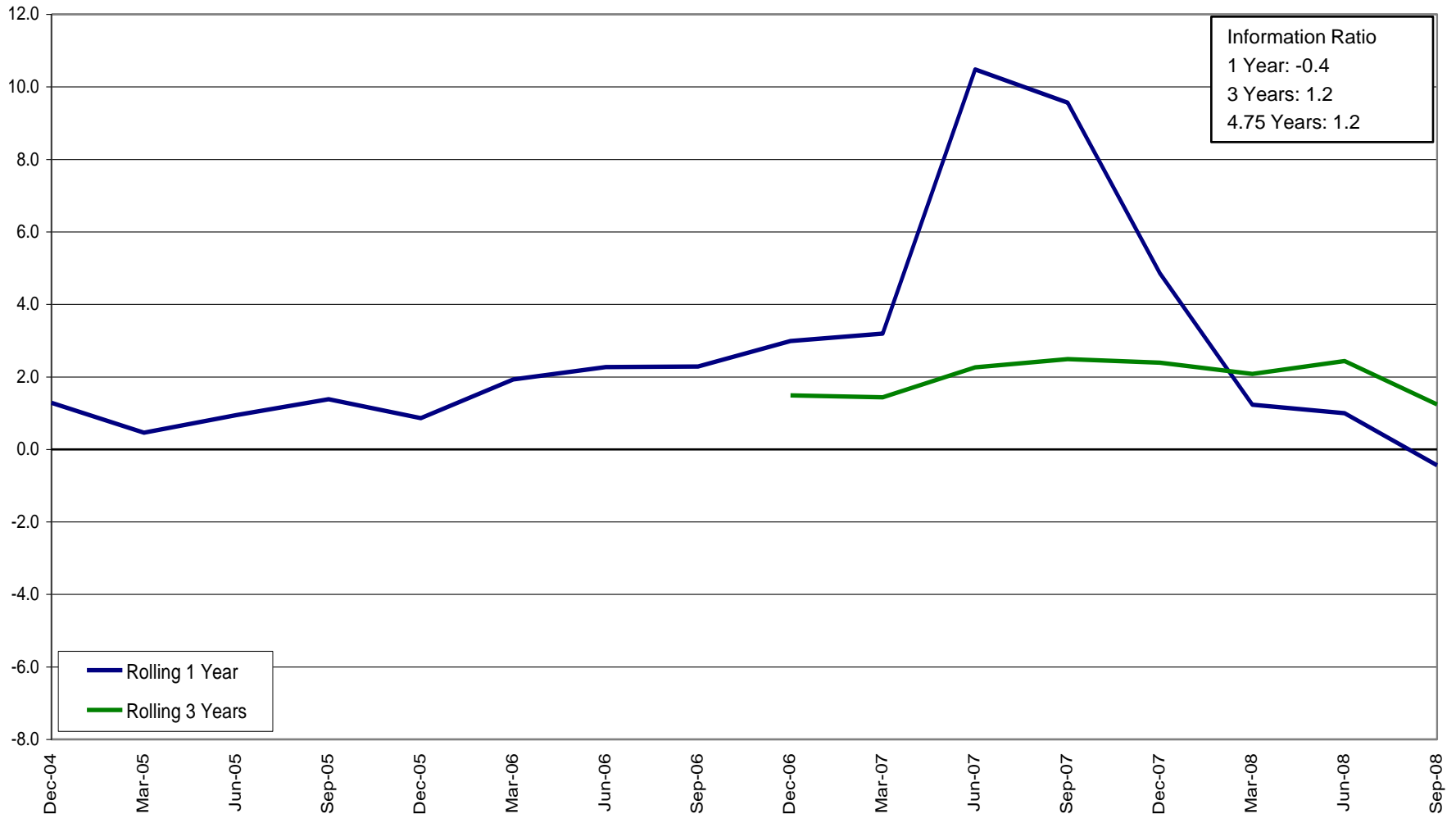
## ASRS DB Experience (6/30/08-9/30/08) + Simulated Returns

### December 31, 2003 – Period Ending September 30, 2008



Calculated quarterly and gross of fees

**Information Ratio**  
**ASRS DB Experience (6/30/08-9/30/08) + Simulated Returns**  
**December 31, 2003 – Period Ending September 30, 2008**



# DB Advisors

## Performance Attribution

4 Months Ending September 30, 2008\*

- **Biggest Winners**

- Long position in UK Gilt
- Long positions in both Australia 10-year bond and short end of the US yield curve
- Short position in Euro

- **Biggest Losers**

- Long positions in Canada's TSE and Hong Kong's Hang Seng Index
- Long positions in Norwegian Krone, New Zealand and Singapore Dollars
- Short position in Euro Bund

# DB Advisors

## Current Portfolio Positions

| Strategy                                   | Deviation from Benchmark |
|--|--------------------------|
| <b><u>Equity Country Selection:</u></b>    |                          |
| Japan                                      | -6.1%                    |
| Netherlands                                | 4.5%                     |
| Other (9)                                  | 1.3%                     |
| <b>Total Equities</b>                      | <b>-0.3%</b>             |
| <b><u>Commodities:</u></b>                 |                          |
| <b>Total Energy Commodities</b>            | <b>0.2%</b>              |
| <b><u>Foreign Currency:</u></b>            |                          |
| Singapore                                  | 14.5%                    |
| United Kingdom                             | -11.8%                   |
| Australia                                  | 7.2%                     |
| Japan                                      | -6.7%                    |
| Other (7)                                  | 0.3%                     |
| <b>Total Foreign Currency</b>              | <b>3.5%</b>              |
| <b><u>Fixed Income Strategy</u></b>        |                          |
| <b><u>Long-term Country Selection:</u></b> |                          |
| Japan                                      | -2.8                     |
| United Kingdom                             | 1.5                      |
| Other (4)                                  | 1.1                      |
| <b>Total Nominal Long Rates</b>            | <b>-0.2</b>              |

Short Japanese equities because of deteriorating fundamentals, a tendency for Japan to suffer more in declining equity market than others and a strong currency. Quant factors lead to long Netherlands position.

Calendar spread: moderate net long to long-dated contracts to hedge short position in near-dated contract on a beta-neutral basis.

Bullish SGD and AUD, while bearish GBP and JPY. Net short USD on weak fundamentals.

Long UK bonds on expected aggressive rate cuts. Short Japanese bonds as they expect yields to fall less relative to that of other markets and a lower risk premium.

# DB's Current Allocation of Active Risk

